

THE LIFESTYLE OUTLINE: A STUDY OF THE VITAMIN THE NATURAL AND ARTIFICIAL SAMPLE WHICH USED BY UNIVERSITY STUDENTS.

Asmaa F. Hamouda^{1*}, with Fatimah M. AlMaliki², Bador Ab. Alzubayani³, Nawal A. AlMaliki⁴, Fatimah G. AlMaliki⁵, Fatimah S. Almataney⁶, Basma F. AlMaliki⁷, Najma D. Alzahrani⁸

¹Department of biochemistry, University of Alexandria, Alexandria 21111, Egypt.

¹Department of chemistry, University of Al Leith- Umm Al-Qura, Mecca, 21955, Saudi Arabia.

^{2,3,4,5,6,7,8}Undergraduate students, Department of chemistry, University of Al Leith- Umm Al-Qura, Mecca, 21955, Saudi Arabia.

***Corresponding Author: -**

E-mail: asmaakingdom1@yahoo.com.

Abstract: -

The Lifestyle outline is a way for students to study about environmental choices by modifying their lifestyles through nutritional assessment. Nutritional evaluation is the process of identifying characters known to correlate with nutrition obstacles. Certain foods with additives, eating fake, disguised as food can generate muscle and joint pain connected with infertility, arthritis, gout, fibromyalgia, obesity, cancer and others. Avoiding these foods can diminish inflammation, thus limit obesity, cancer, and another disease. Vitamin C in human health and illness is still a mystery. The aim of the study to determine the highest and the lowest concentration of vitamin C content in fresh fruits and commercial beverages chosen by university students in College – Al Leith-Umm al-Qura University, Saudi Arabia. The analysis sample selected according to the questionnaire in 100 feminine students. The result explained that not all the studied populations obtain the daily recommended of natural source vitamin C.

Keywords: - Artificial, Beverages, lifestyle, Natural, Questionnaires, Vitamin C.



INTRODUCTION

Nutritional evaluation is incorporating food nutrients measuring, the lifestyle habits study, anthropometric and biological profile analysis as well as others [1]. Malnutrition associated with both obesity and underweight because eating nefarious that attribute with a high rate of morbidity and early mortality if transmitted untreated led to raises the risk of developing heart diseases, diabetes, infertility, arthritis and many types of cancer [2],[3].

The critical step in accumulating data on the nutritional situation of a member in university students is to obtain data on past diet, dietary habits and medical history using questionnaires and asks each student to choose different ways in which they are interested in changing their habits [4], [5]. As well as analysis of food component such as essential nutrient including vitamins is a fundamental process. Vitamins are complex natural molecules needed in small quantities by the body to maintain health. The daily demands of the various vitamins are tiny amounts. Ascorbic acid is one of the essential water-soluble vitamins. It required for collagen, carnitine, and neurotransmitters formation. Most plants and animals creatures manufacture ascorbic acid for their requirement. However, apes and humans cannot manufacture ascorbic acid due to lack of an enzyme gulonolactone oxidase. Consequently, ascorbic acid has to be supplied substantially through fruits, vegetables, and tablets under the doctor permission. The current US recommended daily allowance (RDA) for ascorbic acid ranges between 100–120 mg/per day for adults. Numerous health benefits connected to the ascorbic acid such as antioxidant, anti-atherogenic, anti-carcinogenic, immunomodulator and prevents cold, etc. [6]-[10]. Still there are inscrutability and limit studies for both benefits and side effects of vitamin C. As well as explain the best way of gained the proper amount of vitamin C. Our examined assign the issue and to analyze and differentiate between the concentrations of vitamin C in marketable fruit juices and fresh fruit for university students in College – Al Leith-Umm al-Qura University, Saudi Arabia. The analysis sample chose according to the questionnaire in populations 100 female students, aged: 17-30 years old.

I. Materials and Methods

A. Materials

- 1) **The Study community:** A personal interview protocol is developed by the questions responded about the volunteers' current health status and included in the investigation. The entire number of participants was 100 female students (17 to 35 years old). The lead of the participants was from College – Al Leith-Umm al-Qura University, Saudi Arabia. The assessment took place in the period March-April 2016. The protocol approved by the University ethics committee.
- 2) **Chemicals:** The chemicals used for the experimental titration determination in our study includes distilled water, 2 g of potassium iodide, 1.3 g of iodine, 0.5% starch solution, standard ascorbic acid.

B. Methods

- 1) **The Fundamental Methods to Collect Data on Dietary Intake:** Dietary Nutritional History (Current Intake) and Food Frequency Questionnaire (FFQ) is assessment by:
Dietary history and food rate knowledge collected during the interview with university students. Questionnaire questions that asked to obtain a complete Nutritional History are varying by the information [11]-[17].

Sample of Nutritional History Questions:

1. How many weights you gained or lost over the last year?
2. Did you eat the snack a day? Have many snacks? Which type?
3. Did you eat fruits or vegetables as a snack? Which type?
4. Have you followed any diet? (If yes, which type and why?)
5. Are there any feeds or groups of foods that you despise, withdraw? Did you have any food allergic?
6. Are you taking any vitamins supplements or dietary complements? (If yes, which type and why?).
7. Did you or your family have a chronic disease?
8. Did you read the nutritional ingredients label?
9. Did you drink a fruit juice? Is it Natural juice or artificial? Which type?

- 2) **The Sample collecting and preparation for Vitamin C Determination:** The commercial fruits and vegetables such as lemon, strawberry, an orange tomatoes, tangerine, Apple, mango, kiwi , guava, grapefruits, cantaloupe, and artificial juice(Pepsi, Citrus Miranda, Caesar Lemon Mint, Al Rabie Orange, Caesar Mango, Caesar Pineapple, 7Up, Caesar Guava , Al Rabie Fruit Cocktail, RANI Float, Caesar, Apple, Cade, Boisson, Coca-Cola, Code Red, Frutz) were purchased from local market found in Saudi Arabia Dated March-April 2016 and brought to Laboratory of Chemistry Department of Al Leith-Umm al-Qura University, Saudi Arabia. The fruit juices extracted by fruit pressing and was filtered using a transparent muslin cloth and made up to 100ml with distilled water. Vitamin C content of the fresh fruit and artificial juices determined according to Nweze et al. (2015) and Huma et al. 2015[18], [19] .

- 3) **Statistic:** The computer software Statistical Unit for Social Sciences (IBM SPSS) version (21) has been used for the purpose of conducting the statistical analysis. The following analytical tools had used: the descriptive analysis (frequencies and percentages) to study the preferred fruits and beverages. Pearson Correlation Test to test the relationship between vitamin c concentration and each of fruits and beverages preferred by the students. The significance of the collected results analyzed at the 5% and 1% levels.

II. Results

Table 1 showed that the most prefer daily habit between university students is (yes) for drinking artificial beverages that showed 28 % as compared to eating fresh fruits that showed 46% for no answer. The fruits have arranged in descending order from the most preferred to the lowest. We find that most favorite fruit is lemon, where (72.0%) of the students prefer it, then in the second order is “strawberry” (68.0%). The last fruit preferred by the student is “cantaloupe”, where only (13.0%) of the students prefer it. We also find that there are no students eat “garlic”, “Chilli pepper” (0.0%).

Table (2) above shows the frequencies and percentages of the artificial beverages that the students drink. The beverages have arranged in descending order from the most preferred to the lowest. We find that most favorite drink is “Pepsi” where (32.0%) of the students prefer it, then in the second order is “Citrus Miranda” (13.0%). The last beverages preferred by the students are “Cade” “Boisson” “Coca-Cola” “Code Red” (1.0%) only for each. We also find that there are no students drink “Frutz” (0.0%). Reports prevalence ratio of fresh fruit, vegetables food daily consumption revealed that 28%, 72%, 68%, 64%, 53%, 51%, 47%, 47%, 44%, 22 %, 14 %, 13 %, 0.0%, 0.0%, and 0.0% for a lemon, a strawberry, an orange, tomatoes, tangerine, Apple with peel, mango, a kiwi fruit, a guava, grapefruits, a cantaloupe, garlic, Chili pepper (green), and Chili Pepper (red) respectively. Reports prevalence ratio of artificial beverages daily consumption revealed that 32 % , 13 % , 11 % , 10 % , 10% , 5%, 4%, 4%, 3%, 2%, 2%, 1.0 % , 1.0 % ,1.0% ,1.0 % ,0.0 % for Pepsi, Citrus Miranda, Caesar Lemon Mint, Al Rabie Orange, Caesar Mango, Caesar Pineapple, 7Up, Caesar Guava , Al Rabie Fruit Cocktail, RANI Float, Caesar, Apple, Cade, Boisson, Coca-Cola, Code Red, Frutz respectively(Table 2).

Table 3 showed the concentration of vitamin C which equal 200 mg/100g, 55.5 mg/100g, 52 mg/100g, 11.4 mg/100g, 28.5 mg/100g, 6.5 mg/100g, 27.6 mg/100g, 91.5 mg/100g, 222.6 mg/100g, 29 mg/100g, 6.0 mg/100g, 29.5 mg/100g, 222 mg/100g, 138 mg/100g for a lemon, a strawberry, an orange, tomatoes, tangerine, Apple with peel, mango, a kiwi fruit, a guava, grapefruits, a cantaloupe, garlic, Chili pepper (green), and Chili Pepper (red) respectively. Data also showed vitamin C concentration is 0.00 mg /100, 0.70 mg /100, 4.10 mg /100, 0.70 mg /100, 160 mg /100, 140 mg /100, 1.00 mg /100, 220 mg /100, 100 mg /100, 1.00 mg /100, 140 mg /100, 0.00 mg /100, 0.00 mg /100, 0.00 mg /100, 0.00 mg /100, 0.0 mg /100 ml for Pepsi, Citrus Miranda, Caesar Lemon Mint, Al Rabie Orange, Caesar Mango, Caesar Pineapple, 7Up, Caesar Guava , Al Rabie Fruit Cocktail, RANI Float, Caesar, Apple, Cade, Boisson, Coca-Cola, Code Red, Frutz respectively(table 4).

The Pearson correlation coefficient between eating fruits and vitamin C concentration in each 100g of fruits showed a significant positive relation (0.238) at the 0.01 level (2-tailed). Figure (1) showed the association between the concentration of vitamin C and eating fruits. The Pearson correlation coefficient between vitamin C and drinking artificial beverages in each 100ml of juices showed a significant negative relation(-0.262) at the 0.05 level (2-tailed). Figure (2) demonstrated a relationship between drinking artificial beverages and vitamin C con

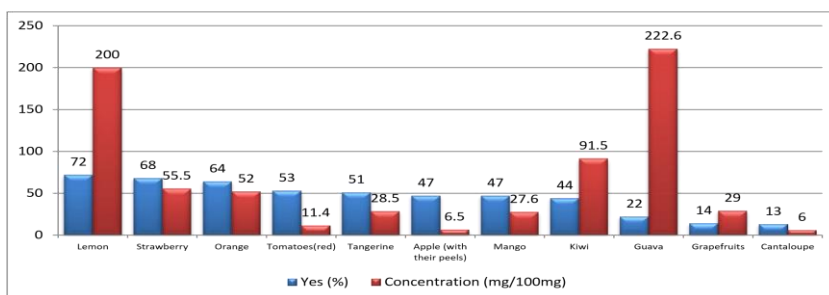


Figure (1) : The relationship between eating fruits and vitamin C concentration:

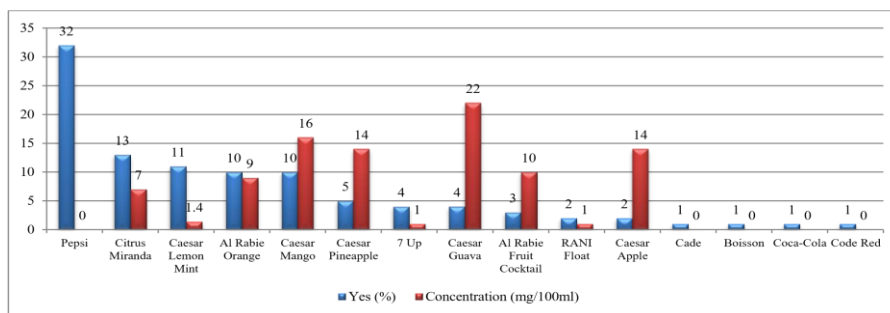


Figure (2): the relationship between drinking artificial beverages and vitamin c concentration:

Table :(I) the Fruits Questionnaires.

Fruits	Answer					
	Yes		Sometimes		No	
	Freq.	%	Freq.	%	Freq.	%
Do you prefer fresh fruit, vegetables and juice than artificial beverages?	28	28.0	26	26.0	46	46.0
Do you eat a lemon?	72	72.0	18	18.0	10	10.0
Do you eat a strawberry?	68	68.0	24	24.0	8	8.0
Do you eat an orange?	64	64.0	27	27.0	9	9.0
Do you eat tomatoes?	53	53.0	35	35.0	12	12.0
Do you eat tangerine?	51	51.0	31	31.0	18	18.0
Do you prefer eating fruits and vegetables with peels such as Apple?	47	47.0	35	35.0	18	18.0
Do you eat a mango?	47	47.0	23	23.0	30	30.0
Do you eat a kiwi fruit?	44	44.0	30	30.0	26	26.0
Do you eat the fruits?	42	42.0	54	54.0	4	4.0
Do you eat a guava?	22	22.0	19	19.0	59	59.0
Do you eat grapefruits?	14	14.0	24	24.0	62	62.0
Do you eat a cantaloupe?	13	13.0	23	23.0	64	64.0
Do you eat garlic?	0.0	0.0	5.0	5.0	95	95
Do you eat Chili pepper (green)?	0.0	0.0	10.0	10.0	90	0.09
Do you eat Chili pepper (red)?	0.0	0.0	0.0	0.0	100	100

Table :(II) the Beverages Questionnaires.

Artificial Beverages	Answers			
	Yes		NO	
	Freq.	%	Freq.	%
Did you read the nutritional ingredients label? for Artificial Beverages	95	95.0	5	5.0
The most use Artificial Beverages. Do you Drink?	Answers			
	Yes		No	
	Freq.	%	Freq.	%
Pepsi	32	32.0	68	68.0
Citrus Miranda	13	13.0	87	87.0
Caesar Lemon Mint	11	11.0	89	89.0
Al Rabie Orange	10	10.0	90	90.0
Caesar Mango	10	10.0	90	90.0
Caesar Pineapple	5.0	5.0	95	95.0
7 Up	4.0	4.0	96	96.0
Caesar Guava	4.0	4.0	96	96.0
Al Rabie Fruit Cocktail	3.0	3.0	97	97.0
RANI Float	2.0	2.0	98	98.0
Caesar Apple	2.0	2.0	98	98.0
Cade	1.0	1.0	99	99.0
Boisson	1.0	1.0	99	99.0
Coca-Cola	1.0	1.0	99	99.0
Code Red	1.0	1.0	99	99.0
Frutz	0.0	0.0	100	100.0

Table: (III) Vitamin C concentration in fresh fruit.

Types of Fruit(It was arranged accordingly for daily use by students)	Average Vitamin C Concentration (mg / 100g)
1- Lemon	200 mg/100g
2-Strawberry	55.5 mg/100g
3-Orange	52 mg/100g
4-Tomatoes(red)	11.4 mg/100g
5-Tangerine	28.5 mg/100g
6-Apple(with their peels)	6.5 mg/100g
7-Mango	27.6 mg/100g
8-Kiwi	91.5 mg/100g
9-Guava	222.6 mg/100g
10-Grapefruits	29 mg/100g
11-Cantaloupe	6 mg/100g
12-Garlic	29.5 mg/100g
13- Chili pepper (green)	222 mg/100g
14-Chili pepper (red)?	138 mg/100g

Table: (IV) Vitamin C concentration in Artificial Beverages.

Types of Artificial Beverages (It was arranged accordingly for daily use by students)	Average Vitamin C Concentration (mg / 100 ml)
Pepsi	0.0 mg / 100 ml
Citrus Miranda	7.0 mg / 100 ml
Caesar Lemon Mint	1.4 mg / 100 ml
Al Rabie Orange	9.0 mg / 100 ml
Caesar Mango	16 mg / 100 ml
Caesar Pineapple	14 mg / 100 ml
7 Up	1.0 mg / 100 ml
Caesar Guava	22.0 mg / 100 ml
Al Rabie Fruit Cocktail	10.0 mg / 100 ml
RANI Float	1.0 mg / 100 ml
Caesar Apple	14.0 mg / 100 ml
Cade	0.0 mg / 100 ml
Boisson	0.0 mg / 100 ml
Coca-Cola	0.0 mg / 100 ml
Code Red	0.0 mg / 100 ml
Frutz	0.0 mg / 100 ml

III. Discussion

The vitamins are organic compounds and vital nutrients that an organism requires in small sufficient quantities, and it must acquire through the diet. Vitamins have various biochemical roles including producer of energy, regulate metabolism, proper nerve function, bone growth, maintain vision and immune system, cell reproduction and division as well as protect cell membrane and other. Vitamin D; have a hormone-like role as controls of mineral metabolism or regulators of cell and tissue maturity and differentiation such as remarkable forms of vitamin A[20]. The extended abundance of vitamins, the B complex vitamins, have the capacity as enzyme cofactors (coenzymes) or work as part of prosthetic groups like biotin is a bit of enzyme that involved in manufacturing fatty acids. Folic acid carries methyl, formyl, and methylene groups in the cell and helps in enzyme catalysts as coenzymes or detachable particles. Vitamin K has a role in regulation blood coagulation process, as well as Vitamins E and C have antioxidants and anti-inflammatory functions [20]-[22].

Vitamin C is an essential nutrient for humans; opposed most mammals, a human cannot manufacture vitamin C and consequently must acquire it from the diet. Deficiency in vitamin C lead to many diseases including scurvy identified by enlarged bleeding gums and the hole of previously healed wounds. Scurvy assumed inadequately nourished sailors until the end of the 18th century. Some researchers have examined the bioavailability of chemically identical natural and manufactured ascorbic acid and decided no clinically notable variation in bioavailability or bioactivity [21], [22].

At low frequencies, the absorption of ascorbic acid happens through an active transport method, since at massive levels, absorption mediated by an aggregate of both active and passive spread in the gastrointestinal tract [23]-[25]. Thus, eating foods rich in vitamin C may promote absorption by slowing the interaction of the diet juice with the gastric wall, and this is the natural way that may be due to of fiber present in fruits that maintain the level of vitamin C in steady required needs range. The increased concentration maintained as long as the person sipping the artificial juice in a large amount daily, or supply table without doctor permission which proposes that this is an effective means of boosting vitamin C levels in the body that may have unfriendly effects. In other readings, blood concentrations of vitamin C managed through the use of massive vitamin C consumption in the form of tablets (2000 mg), which implies that high-dose supplements force not be the most efficient way of improving the body's supply of vitamin C [23]-[26]. While Recommended Dietary Allowance (adult male) is 90 mg per day and for (adult female) is 75 mg per day. When vitamin C takes in large doses, ascorbic acid causes diarrhea, nausea, vomiting, flushing of the face, headache, fatigue and disturbed sleep and kidney stones in healthy subjects and may end with death [27][29]. The primary toxic reactions in the infants were skin rashes [27],[28]. The side effects of increase the body pool of vitamin C may be due to increase the absorption and concentration of the element in blood by vitamin C that increases their effect for example Mercury, Arsenic, Nickel compound which present in seafood, shrimp, and other food as environmental contaminations [29]. Furthermore, artificial juice and beverages contain a lot of food additive that has a lot of serious effects which led to many health problems.

Lifestyle means primary report day –to-day habits that we rely on that can associate with particular diseases event and speed up or turn off our metabolism [16]-[17]. Some people think they are getting the same concentration of vitamin C in any fruits, even commercial fruit juices, or natural fruit juices. However, the commercial fruit juice is typically designed to appeal to the taste preferences of the market, and will, therefore, contain different flavor equipment or chemicals depending on where it will finally end up and known as eating fake. Our results showed a significantly elevated ratio in the daily habit where the university students using artificial beverages more than natural fruits and vegetable. Our study also proves that the most used artificial drinks are Pepsi that is empty from vitamin C. So our study showed that most university students hadn't enough essential daily vitamin C need. Artificial beverages increased their body toxin composition with the synthetic chemical which has a disadvantageous impact on student's life and making their bodies have the predisposition to get many complications that agree with many previous studies [16], [17].

Artificial beverages which applied in our study include artificial sweeteners as sugar and sugar alcohols that thought nutritive sweeteners below in calories, but they are not calorie free. Artificial beverages also contain Monosodium glutamate (MSG) that is an amino acid that worked as the flavor enhancer. Glutamate is a neurotransmitter and a part of an antioxidant glutathione (GSH). The toxicity of above level of glutamate led to calcium flooding and overstimulation of nerve cells. Glutamate can develop oxidative stress and deplete GSH and other antioxidant levels and followed in many types of diseases [1]-[5], [30]. Manufacturers add synthetic ascorbic acid to the artificial juice that has different bioavailability and effect as compared to natural sources. For example, the juice produced for the North American market serves to contain high amounts of ethyl butyrate, which is one of the most commonly used chemicals in both flavors and fragrances and has side effect[1]-[5].

Our result showed that a significant percent of our study population did not read the nutritional ingredients label. The sugar that marked and label as sugar-free, alcohols or polyols, include fewer calories than table sugar and led to decrease glycemic response, dental cavities, and lowering caloric intake. These sugar quantity low calories than other because they have fragmentary absorption way in our bodies, which start abdominal gas, diarrhea, and other problems [30]-[37]. Otherwise, consumption of sugar-sweetened beverages causes metabolic disorders, such as obesity. Our results showed that Pepsi used in our population more than natural fruit. As well as it is the most artificial beverages used by university students in Umm Al-Qura University, Saudi Arabia. Aspartame, an artificial sweetener present in diet drinks especially Pepsi Cola, is a low calorie, has many side effects including liver, kidney, brain disorder, Blurred Vision, Headaches, Seizures, and develops hunger [30]-[37]. Methanol, aspartame by-products, led to aspartame toxicity, a rise in plasma concentrations of phenylalanine (Phe) and aspartic acid that are changing the brain's neural chemical composition that links between epilepsy and brain tumors [30]-[37].

It knows that fresh fruit juices frequently include more vitamin C compared to commercial fruit juices. The view and discussion prove that the commercial fruit juice is typically outlined to advance to the taste favorites of the market, and will, consequently, carry different flavor equipment or chemicals depending on where it will ultimately end up [38]-[40]. Although ascorbic acid is a stable solid that does not react with air, commercial fruit juice has already rapidly oxidized on exposure to air and light and then supports oxidation when in aqueous solution. The result of oxidation is dehydroascorbic acid. In this case, all of the nutrients in fruit juice have been damaged [38]-[40]. It also has artificial, including often an enormous amount of supplemented sugar as we discussed before. Another factor that affects the vitamin C content in artificial fruit juices is the type of storage temperature that changes during the industrial process in the production of artificial fruit juices . Furthermore, our result showed a significant positive correlation between vitamin C concentration and fruit consumption and a significant negative correlation between vitamin C concentration and drinking artificial beverages that indicated that artificial fruit juices not provided the students need of vitamin C.

The result of this study showed that all of the fresh fruit juices contains of higher vitamin C concentration as compared to in commercial fruit juices that distributed to the body in the steady processes. Furthermore, fresh fruits and vegetables included phytochemistry and polyphenol compound that metabolized by the same way of metabolic detoxification process common to many xenobiotics that restricts their potential toxic effects and have many roles to treatment and protect a lot of illness. As well as fruits included essential nutrients such as water, dietary fiber, healthy fat, protein, and vitamins [16], [17].

Peoples emptied the food from its content of life essential, artificial food and beverages and added a chemical. This considers like the sorts of stuff embeds in human stomach to continue the attic of his life, without concerns if his body admit this food or not . Hence, we thought that current conditions, loss of appetite, degeneration of powers, digestive disorder, increase of diseases come from our lifestyle through go facing Mother Nature. The first and major move in feeling well is lifestyle authority through a challenge to eliminating the triggers like removing artificial beverages. The daily eating 5-7 partition of seasonal fruit and vegetables supplied human body with a current dietary need of vitamin C and associated with guidelines of high diet quality [16], [17].

IV. Conclusions

In conclusion, fresh fruit, and fresh juice are more fitting for drinking in daily life that provided our vitamin C needs. Furthermore, fresh fruits have longer shelf life and have numbered of essential natural nutrients, enzymes, healthy fat and phytochemicals.

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